

## **Technical Appendix for**

### **Optimal Drug Benefit Design: the Case of Cholesterol-Lowering Drug Therapy**

We assembled a data set of pharmacy and medical claims from 1997 to 2002 representing 30 large employers. The claims captured all health care claims and encounters, including prescription drugs, inpatient, emergency, and ambulatory services. The drug claims included information on the type of drug, drug name, national drug code, dosage, days supplied, and place of purchase (retail or mail-order), and payments by patients and health plans. The medical claims included the date of service, diagnosis and procedure codes, type of facility and provider.

We restricted our attention to the 62,774 adults (ages 20+) who initiated cholesterol-lowering (CL) therapy between 1997 and 2001. Patients were considered to have initiated therapy if they did not use CL therapy in the previous six months. (Analyses based on a longer window of clean claims yielded similar results.) Only patients who remained enrolled in the health plan for at least 12 months were included in the analysis.

The distribution of patients by year of initiation is given in Table A1. For the initial prescription—and each subsequent prescription—we observed the fill date, type and dose of cholesterol-lowering drug, total days supplied, patient out of pocket expense, and payments made by all third-party payers.

#### **Computing co-payments**

In most plans, patients face varying co-payments depending on whether they fill their prescriptions through the mail, at a preferred pharmacy, or another retail outlet. The co-payments also vary depending on deductibles and benefit caps. We constructed the average daily price for each individual by dividing their total out-of-pocket expenses for cholesterol-lowering agents by the total days supplied. We then multiplied this number by 30 to compute the patient's average monthly co-payment. All prices were inflated to 2004 dollars using the medical services consumer price index.<sup>1</sup>

#### **Classifying patients into CHD risk groups**

The Framingham scoring system is based on results from the Framingham Heart Study and estimates the absolute 10-year CHD risk for an individual. The risk factors used in the scoring system include age, gender, previous diabetes, total cholesterol, HDL cholesterol, blood pressure and cigarette smoking. Table A2 provides details of the Framingham Risk Scoring as reported in the National Cholesterol Education Program (NCEP), Adult Treatment Panel III (2001). The higher the total points, the higher the absolute risk of a CHD event within the next ten years.

Since our claims data do not include information on cholesterol levels, blood pressure and cigarette smoking, we impute them using the National Health and Nutrition Examination Survey (NHANES) from 1999-2000. For cigarette smoking, we use the

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<sup>1</sup>This calculation also averages price differences that arise due to drug-switching; for example, if a patient were to fill their first prescription with a non-preferred brand but then switch to a preferred brand subsequently the price would be an average of the two. In fact, such behavior was rare. For example, 95% of the 25,730 patients who initiated therapy on atorvastatin refilled that drug or dropped therapy altogether.

mean smoking rates by age and gender of the privately insured NHANES population, and compute the expected smoking point for each individual. For calculating cholesterol points, we use the mean cholesterol levels of the NHANES population by age, gender and self reported previous cholesterol problem. Similarly, for blood pressure points, we use the mean blood pressure levels from the NHANES population by age and gender and self-reported previous hypertension. Individuals with previous hypertension are assigned higher points as suggested by the NCEP.

The bottom panel in Table A2 converts Framingham point scores to the absolute CHD risk within the next ten years. NCEP discusses the guidelines for the initiation of cholesterol lowering therapy based on these risk factors. In particular, NCEP divides patients into three groups using the Framingham score: those with 10-year risk for CHD of >20%, 10-20%, and <10%. Similarly, we assign each patient in our data into one of these risk groups. Again, following the NCEP, patients with existing heart disease (myocardial infarction, ischemic heart disease, angina, atherosclerosis, or vascular disease) or diabetes were assigned to the highest risk group regardless of other characteristics.

### **Compliance in the year following initiation of therapy**

This model is designed to elicit the association between compliance and co-payments. Furthermore, we are interested in whether compliance varies with co-morbid conditions, as suggested by Figure 1. We begin by specifying the utility of compliance for patient  $i$  who is enrolled in health plan  $p$ , and who starts cholesterol-lowering therapy at time  $t$ :

$$Utility_{i,t,p} = X_i\beta - \alpha_i Copay_i + \eta_t + \delta_p + \varepsilon_{i,t,p} \quad (1)$$

The variables  $X_i$  are patient-specific characteristics that impact compliance (such as age, gender, previous health),  $Copay_i$  is the patient's out of pocket expense for a month's supply of medication. The  $\eta_t$  include time specific dummy variables that control for changes over time, and  $\delta_p$  include health plan specific dummy variables that control for unobserved health plan characteristics that are common to all individuals in a given health plan. The  $\varepsilon_{i,t,p}$  capture unobserved patient heterogeneity that are identically and independently distributed across patients, but are correlated for patients in the same health plan.

The parameter  $\alpha_i$  represents the decrease in utility from compliance if the patient's co-payment increases by \$1. We allow for this co-payment sensitivity to vary across individuals based on patient specific risk factors for CHD as below

$$\alpha_i = \theta_o + \theta_1 Risk\_Factors_i \quad (2)$$

where  $Risk\_Factors_i$  is a vector of patient-specific characteristics such as age, gender, heart disease, lipid disorder, and diabetes or hypertension. We substitute equation (2) into equation (1), and estimate the parameters of the utility model

$$Utility_{i,t,p} = X_i\beta - \theta_0 Copay_i - \theta_1 Risk\_Factors_i * Copay_i + \eta_t + \delta_p + \varepsilon_{i,t,p} \quad (3)$$

using an ordered logit specification. We categorize a given patient into one of 10 possible compliance categories based on the percentage of compliant days during the first year following therapy. We do not observe the value of  $Utility_{i,t,p}$ , but we observe in which compliance category the patient falls. Specifically, the patient is classified into compliance category 1 if s/he complies less than 10% annually, into 2 if compliance is 10%-19% of the year, into 3 if 20%-29% and so on up to compliance category 10 if s/he complies 90%-100%.

The probabilities of falling into a given compliance category can be written as below.

$$\begin{aligned} \Pr(y_{i,t,p} = 1) &= \Pr(Utility_{i,t,p} < m_1) \\ \Pr(y_{i,t,p} = k) &= \Pr(m_{k-1} \leq Utility_{i,t,p} < m_k) \text{ for } k = 2, \dots, 9 \\ \Pr(y_{i,t,p} = 10) &= \Pr(m_9 \leq Utility_{i,t,p}) \end{aligned}$$

We estimate the parameter vector  $[\beta, \theta_0, \theta_1, \mu_1, \dots, \mu_k]$  using maximum likelihood estimation. Table A3 presents our parameter estimates. Our preferred specification includes plan fixed effects to account for differences in benefit design and the unobserved health characteristics of the employees.

The ordered logit model allows us to predict the probability that a patient will fall into one of 10 compliance categories (1=less than 10%; 2=10% to 19%, and so on). Categories 9 and 10 correspond to compliance greater than 80%; which, as noted in the paper is a key cutoff for the efficacy of CL therapy. Using the parameter estimates, we can predict the probability of falling into each category at any co-payment for each individual. So, for each individual, we construct the probability of full compliance by summing the predicted probabilities for categories 9 and 10. We can compute the probabilities of partial and non-compliance in a similar manner. These predictions are made using a \$10 co-payment and a \$20 co-payment for each person in each risk class. (The sample sizes for each group are 21,258 for high risk; 17,567 for medium risk; and 23,949 for low risk). The average predicted probabilities of full compliance are reported—by risk class and co-payment level—in Figure 2. All predictions used in the paper use the parameter estimates for the model with plan fixed effects from Table A3.

### Effects of compliance on service use

We follow each patient who initiated therapy in 1997 or 1998 up-to and including 2002 for the years they remain in a health plan in our data. Table A4 reports the distribution of patients by the number of follow-up years. We record their annual compliant days and annual service use such as the total number of hospitalizations, circulatory related hospitalizations, total emergency department (ED) visits, and circulatory related ED visits. For each patient we construct a panel for each year they appear in our data.

We model the service use of patient  $i$  who is enrolled in health plan  $p$ , in a given year  $t$  as

$$Service\_Use_{i,t,p} = X_i b + Full\_Complier_{i,t_0 \dots t-1,p} + h_t + d_p + e_{i,t,p} \quad (4)$$

where  $X_i$  is a vector of patient specific characteristics that could impact the need for service use (such as age, gender, previous health conditions). The variable  $Full\_Complier_{i,t_0 \dots t-1,p}$  takes on value “1” if the patient on average complied 80% or more annually between  $t_0$  (starting year of therapy) and  $t - 1$ , and it takes on value “0” otherwise. Similar to before, the  $\eta_t$  represent year fixed effects that control for changes over time, and  $\delta_p$  include health plan specific dummy variables that control for unobserved health plan characteristics that are common to all individuals in a given health plan.<sup>2</sup> The  $e_{i,t,p}$  capture unobserved patient heterogeneity. We model  $e_{i,t,p} = \nu_i + \mu_{i,t,p}$  to allow for unobserved individual heterogeneity,  $\nu_i$ , that is persistent over time. The  $\mu_{i,t,p}$  are identically and independently distributed across patients.

The association between full compliance and service use does not necessarily constitute a causal relationship. For example, it is likely that individuals who are health conscious are also more likely to be fully compliant, and at the same time they tend to end up in hospitals less often. The random effects specification helps control for individual level characteristics unobserved to the researcher. The ordinary least squares estimation also predicts a negative association between compliance and service use, while the magnitude of the effect larger. For example, for the high risk patients, ordinary least squares estimates are larger in magnitude by 70% for the total number of hospitalizations, 36% for the number circulatory related hospitalizations, 36% for the number of ED visits, and 67% larger for the number of circulatory related ED visits.

We estimate an unbalanced panel of four years between 2000-2002 separately for different CHD risk groups using a random effects specification. Table A5 presents our results for four different service utilization measures. The first column for each service utilization outcome reports results for the high CHD risk patients. For most specifications, at any given year, individuals that were fully compliant in previous years tend to have lower service use. The magnitude of this association tends to be smaller for low risk patients compared with the medium risk and high risk patients.

As a specification check, we modeled service use in each year as a function of the previous year’s compliance instead of average cumulative compliance from the start of therapy (as shown in Table A5). Thus, we estimated the model:

$$Service\_Use_{i,t,p} = X_i b + Full\_Complier_{i,t-1,p} + h_t + d_p + e_{i,t,p} \quad (5)$$

The results were very similar. Table A6 replicates Table 2 using the specification in (5).

## Simulations

We use our estimates of the compliance model and of the Service Use Model to simulate the impact of various co-payment schemes on patient compliance, health plan costs, pharmaceutical revenues and service utilization. To present our methodology, let

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<sup>2</sup> We allow for individuals to change their health plan over time.

$$\hat{V}_{i,t,p} = X_i \hat{\beta} - \hat{\theta}_0 \text{Copay}_i - \hat{\theta}_1 \text{Risk\_Factors}_i * \text{Copay}_i + \hat{\eta}_t + \hat{\delta}_p,$$

where  $\hat{\beta}, \hat{\theta}_0, \hat{\theta}_1, \hat{\eta}_t, \hat{\delta}_p$  represent estimated parameters. Then the probabilities corresponding to each compliance category can be calculated using

$$\begin{aligned} p(y_{i,t,p} = 1) &= \exp(\mu_1 - \hat{V}_{i,t,p}) / (1 + \exp(\mu_1 - \hat{V}_{i,t,p})) \\ p(y_{i,t,p} = k) &= [\exp(\mu_k - \hat{V}_{i,t,p}) / (1 + \exp(\mu_k - \hat{V}_{i,t,p}))] - [\exp(\mu_{k-1} - \hat{V}_{i,t,p}) / (1 + \exp(\mu_{k-1} - \hat{V}_{i,t,p}))] \\ &\text{for } k = 2, \dots, 9, \text{ and} \\ p(y_{i,t,p} = 10) &= 1 - \exp(\mu_9 - \hat{V}_{i,t,p}) / (1 + \exp(\mu_9 - \hat{V}_{i,t,p})). \end{aligned}$$

Given these estimates for the probability of falling into each compliance category, we estimate the health plan payments for each patient. First, we compute the payment of health plan for each individual's daily supply of medication using

$$\text{daily\_payment}_{i,t,p} = \text{daily\_price}_{i,t,p} - \text{Copay}_{i,t,p}$$

where  $\text{daily\_price}_{i,t,p}$  is the price paid to the pharmacy per day of medication supply. Next, we compute the total health plan payment for a given patient using

$$\text{PlanPay}_{i,t,p} = \sum_{k=1}^{10} p(y_{i,t,p} = k) * \text{daily\_payment}_{i,t,p} * 365 * 0.1 * k.$$

where  $k=1, \dots, 10$

Similarly, we compute the revenues for the pharmaceutical companies using a similar formula

$$\text{Pharm Rev}_{i,t,p} = \sum_{k=1}^{10} p(y_{i,t,p} = k) * \text{daily\_price}_{i,t,p} * 365 * 0.1 * k.$$

Using the estimates of the health service utilization model in (4), we predict the number of total hospitalizations, circulatory related hospitalizations, ED visits and circulatory related ED visits for different risk classes and compliance categories.<sup>3</sup> Using these estimates and the predicted portion of the population in each compliance category, we then estimate the total health service utilization of each measure.

In our simulations, we consider three scenarios in addition to the status quo. Both scenarios keep health plan payments approximately the same as in the status quo. In the first scenario, high risk patients pay no co-payments for cholesterol-lowering agents, medium risk patients pay the status quo co-payments, while the co-payments for the low risk patients are increased 60%, to about \$19. In the second scenario, both the high risk

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<sup>3</sup> In this case we have only two categories: full compliance or partial/non compliance

and the medium risk patients receive their medication for free, while the co-payments for the low risk patients is increased to \$25. Finally in the third scenario, neither the high risk nor the medium risk patients pay co-payments, while the co-payment of the low risk patients pay the status-quo co-payments. The simulations were based on estimates from the 1999-2000 NHANES indicating there were 6.3 million privately insured adults and Medicare beneficiaries on CL therapy in the United States Table A7 summarizes our estimates of the total number of privately insured individuals and Medicare beneficiaries on CL therapy as estimated from the NHANES 1999-2000.

Table A1. Sample size for analysis of compliance following year of initiation

	Year Therapy is Initiated					Total
	1997	1998	1999	2000	2001	
No. of observations	3,208	10,279	9,677	14,692	24,918	62,774

Table A2A. Estimate of 10-Year Risk for Men  
(Framingham Point Scores)

Age	Points
20-34	-9
35-39	-4
40-44	0
45-49	3
50-54	6
55-59	8
60-64	10
65-69	11
70-74	12
75-79	13

  

Points					
Total Cholesterol mg/dL	Age				
	20-39	40-49	50-59	60-69	70-79
<160	0	0	0	0	0
160-199	4	3	2	1	0
200-239	7	5	3	1	0
240-279	9	6	4	2	1
>280	11	8	5	3	1

  

Points					
Total Cholesterol mg/dL	Age 20-39 y	Age 40-49 y	Age 50-59 y	Age 60-69 y	Age 70-79 y
Nonsmoker	0	0	0	0	0
Smoker	8	5	3	1	1

  

HDL, mg/dL	Points
>60	-1
50-59	0
40-49	1
<40	2

  

Systolic BP, mm Hg	If Untreated	If Treated
<120	0	0
120-129	0	1
130-139	1	2
140-159	1	2
>160	2	3

  

Point total	10-Year Risk, %
<0	<1
0	1
1	1
2	1
3	1
4	1
5	2
6	2
7	3
8	4
9	5
10	6
11	8
12	10
13	12
14	16
15	20
16	25
>17	>30

Table A2B. Estimate of 10-Year Risk for Women  
(Framingham Point Scores)

Age	Points
20-34	-7
35-39	-3
40-44	0
45-49	3
50-54	6
55-59	8
60-64	10
65-69	12
70-74	14
75-79	16

  

Points					
Total Cholesterol mg/dL	Age				
	20-39	40-49	50-59	60-69	70-79
<160	0	0	0	0	0
160-199	4	3	2	1	1
200-239	8	6	4	2	1
240-279	11	8	5	3	2
>280	13	10	7	4	2

  

Points					
Total Cholesterol mg/dL	Age 20-39 y	Age 40-49 y	Age 50-59 y	Age 60-69 y	Age 70-79 y
Nonsmoker	0	0	0	0	0
Smoker	9	7	4	2	1

  

HDL, mg/dL	Points
>60	-1
50-59	0
40-49	1
<40	2

  

Systolic BP, mm Hg	If Untreated	If Treated
<120	0	0
120-129	1	3
130-139	2	4
140-159	3	5
>160	4	6

  

Point total	10-Year Risk, %
<9	<1
0	1
10	1
11	1
12	1
13	2
14	2
15	3
16	4
17	5
18	6
19	8
20	11
21	14
22	17
23	22
24	27
>25	>30



TABLE A3: Effect of Patient Characteristics and Health on Compliance

Dependent variable: 10 categories of Compliance

Estimation: ordered logit

Regressors

(n=62774)

Age			
18-34	-1.25** (0.28)	-1.28*** (0.32)	
35-44	-0.77*** (0.18)	-0.79*** (0.21)	
45-54	-0.25*** (0.07)	-0.26*** (0.09)	
55-64	base	base	
65-74	0.12** (0.05)	0.09 (0.06)	
75-85	0.01 (0.08)	-0.02 (0.11)	
85 +	-0.03 (0.14)	-0.06 (0.17)	
Male	0.24*** (0.04)	0.21*** (0.04)	
Married	-0.02 (0.05)	-0.05 (0.05)	
Male*Married	-0.04 (0.05)	-0.01 (0.06)	
Prior Health Conditions			
Hypertension	0.06** (0.03)	0.09*** (0.02)	
Diabetes	0.13*** (0.03)	0.14*** (0.03)	
Lipid disorder	0.12*** (0.04)	0.15*** (0.04)	
No. other conditions	-0.06*** (0.01)	-0.05*** (0.01)	
Heart disease	0.22*** (0.04)	0.24*** (0.05)	
Copay & Interactions			
copay	-0.008 (0.034)	-0.004 (0.037)	
copay*cardiac event	-0.006 (0.004)	-0.01* (0.004)	
copay*diabetes or hypert.	0.002 (0.003)	0.002 (0.003)	
copay*hyperchol. or lipid.	-0.002 (0.004)	-0.002 (0.004)	
copay*male	0.01* (0.005)	0.01** (0.004)	
copay*age	-0.001 (0.001)	-0.001 (0.001)	
Time Fixed Effects			
first statin Rx in 1997	base	base	
first statin Rx in 1998	-0.22*** (0.07)	-0.28*** (0.06)	
first statin Rx in 1999	-0.15** (0.07)	-0.32*** (0.09)	
first statin Rx in 2000	-0.19*** (0.06)	-0.31*** (0.08)	
first statin Rx in 2001	-0.44*** (0.08)	-0.53*** (0.09)	
Plan Fixed Effects	not included	included	

Notes:

1. Coefficients are not marginal effects

2. Standard errors are clustered at the plan/year/active/retiree level

3. \*\*\* denotes statistical significance at  $p \leq 0.001$ ; \*\* at  $0.001 < p \leq 0.05$ ;\* at  $0.05 < p \leq 0.1$

Table A4. Sample sizes for analysis of service use as a function of compliance

Year therapy is initiated	Years of follow-up					Total
	1	2	3	4	5	
1997 (n=3,208)	435	1,087	164	37	1,485	3,208
1998 (n=10,279)	4,622	530	163	4,964		10,279

TABLE A5: Association Between Service Utilization and Annual Compliance

Dependent variable: health Outcomes Estimation: random effects Regressors		Number of Hospitalizations			Number of Circulatory Related Hospitalizations			Number of ER Visits			Number of Circulatory related ER Visits		
		High Risk	Med Risk	Low Risk	High Risk	Med Risk	Low Risk	High Risk	Med Risk	Low Risk	High Risk	Med Risk	Low Risk
		(0.06)	(0.05)	(0.02)	(0.03)	(0.02)	(0.01)	(0.03)	(0.02)	(0.01)	(0.01)	(0.006)	(0.005)
Previous Compliance	Full	-0.37***	-0.26***	-0.05**	-0.14***	-0.04**	-0.01	-0.14***	-0.04**	-0.04**	-0.033**	0.006	-0.009*
	(relative to partial/non)	(0.06)	(0.05)	(0.02)	(0.03)	(0.02)	(0.01)	(0.03)	(0.02)	(0.01)	(0.01)	(0.006)	(0.005)
Age													
	18-34	2.95*	n/a	0.08	3.27***	n/a	0.01	2.08**	n/a	0.05	0.24	n/a	-0.01
		(1.64)		(0.11)	(0.61)		(0.04)	(0.72)		(0.07)	(0.31)		(0.02)
	35-44	0.08	-0.42	0.1*	-0.001	-0.12	0.02	0.31**	-0.09	0.14***	-0.013	-0.01	0.006
		(0.34)	(1.2)	(0.05)	(0.13)	(0.35)	(0.02)	(0.15)	(0.4)	(0.03)	(0.07)	(0.1)	(0.01)
	45-54	0	-0.02	0.09**	-0.04	0.01	0.03*	0.003	0.01	0.08***	0.046	0.003	0.006
		(0.16)	(0.11)	(0.04)	(0.06)	(0.03)	(0.02)	(0.07)	(0.04)	(0.03)	(0.03)	(0.01)	(0.008)
	55-64	base	base	base	base	base	base	base	base	base	base	base	base
	65-74	0.09	0.04	0.09**	-0.02	0.02	0.03**	0.01	0.07**	0.05**	0.007	0.004	0.006
		(0.11)	(0.07)	(0.04)	(0.04)	(0.02)	(0.01)	(0.05)	(0.02)	(0.02)	(0.02)	(0.008)	(0.006)
	75-84	0.38***	0.2*	0.13**	0.1**	0.07**	0.04*	0.15**	0.16***	0.09**	0.05**	0.006	0.03**
		(0.11)	(0.11)	(0.06)	(0.04)	(0.03)	(0.02)	(0.05)	(0.04)	(0.04)	(0.02)	(0.01)	(0.01)
	85 +	-0.13	1.3***	n/a	0.001	0.66***	n/a	0.17	0.17	n/a	0.08	0.04	n/a
		(0.37)	(0.37)		(0.14)	(0.11)		(0.16)	(0.12)		(0.07)	(0.04)	
Male		-0.11	-0.11	-0.11*	0.03	0.01	-0.02	-0.02	-0.01	-0.04	0.023	-0.01	-0.0002
		(0.1)	(0.11)	(0.06)	(0.04)	(0.03)	(0.02)	(0.04)	(0.04)	(0.04)	(0.02)	(0.01)	(0.01)
Married		-0.27**	-0.29*	-0.06*	-0.1*	-0.06	-0.04***	-0.1*	-0.03	-0.01	-0.007	-0.003	-0.008
		(0.14)	(0.17)	(0.03)	(0.05)	(0.05)	(0.01)	(0.06)	(0.06)	(0.02)	(0.03)	(0.02)	(0.006)
Male*Married		0.11	0.29	0.12*	-0.005	0.06	0.05*	0.06	0.03	0.04	-0.028	0.004	0.009
		(0.17)	(0.18)	(0.07)	(0.06)	(0.05)	(0.02)	(0.07)	(0.06)	(0.04)	(0.03)	(0.02)	(0.013)
Prior Health Conditions													
	hypertension	0.15*	0.11*	0.001	0.08**	0.02	-0.004	0.07**	-0.01	-0.04*	0.02	-0.003	0.004
		(0.08)	(0.06)	(0.03)	(0.03)	(0.02)	(0.01)	(0.03)	(0.02)	(0.02)	(0.014)	(0.007)	(0.006)
	diabetes	0.39***	n/a	n/a	0.24***	n/a	n/a	0.28***	n/a	n/a	0.07***		
		(0.09)			(0.03)			(0.04)			(0.02)		
	cholesterol	0.02	0.07	-0.05	-0.04	0.05**	-0.003	-0.02	0.03	-0.02	-0.012	-0.001	-0.001
		(0.1)	(0.07)	(0.04)	(0.04)	(0.02)	(0.01)	(0.04)	(0.02)	(0.02)	(0.02)	(0.008)	(0.007)
	total other	0.21***	0.14**	0.07***	0.06***	0.02*	0.04***	0.09***	0.03**	0.08***	0.03***	0.008	0.018***
		(0.05)	(0.05)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.009)	(0.005)	(0.004)
	heart disease	0.37***	n/a	n/a	0.29***	n/a	n/a	0.26***	n/a	n/a	0.1***		
		(0.09)			(0.04)			(0.04)			(0.02)		

## Notes:

1. \*\*\* denotes statistical significance at  $p \leq 0.001$ ; \*\* at  $0.001 \leq p \leq 0.05$ ; \* at  $0.05 \leq p \leq 0.1$
2. Sample includes 2257 high risk, 2193 medium risk, 2811 low risk individuals
3. Unbalanced panel for 2000-2002 includes 7072 observations for high risk, 6418 for medium risk, 7844 for low risk specifications
4. Year dummy variables and plan dummy variables are included in all specifications

Table A6. Adjusted utilization rates as a function of compliance for privately insured patients initiating lipid-lowering therapy  
(Specifications use previous year's compliance)

Utilization	Risk of CHD								
	High			Medium			Low		
	Full	Partial/Non	p-value	Full	Partial/Non	p-value	Full	Partial/Non	p-value
Hospitalizations									
All	668	857	<0.01	288	504	<0.01	225	275	0.02
Circulatory-only	297	415	<0.01	114	144	0.04	81	90	0.28
ED visits									
All	423	520	<0.01	197	248	<0.01	170	204	0.02
Circulatory-only	106	132	0.03	33	34	0.86	26	36	0.025

TABLE A7: Total Number of Privately Insured Adults and Medicare Beneficiaries on Cholesterol-Lowering Therapy

	Ages 18-64	65 and older
Private Insurance Only	4,856,476	28,101
Medicare Only	75,310	602,426
Private and Medicare	90,537	548,349
Private and Other Gov't	127,026	20,843
<b>Total</b>	<b>5,149,349</b>	<b>1,199,719</b>

Source: NHANES 1999-2000